

Montana Board of Oil and Gas Conservation Environmental Assessment

Operator: TAQA North USA, Inc.

Well Name/Number: Hjelm 13-1H

Location: NE NE Section 13 T37N R57E

County: Sheridan, MT; Field (or Wildcat) Wildcat (Flat Lake)

Air Quality

(possible concerns)

Long drilling time: No, 20-30 days drilling time.

Unusually deep drilling (high horsepower rig): Heavy duty double derrick drilling rig to drill a Bakken formation single lateral horizontal well, 11,870' MD/7,769' TVD.

Possible H₂S gas production: Slight possibility of H₂S gas production.

In/near Class I air quality area: No Class I air quality area in the area of review.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Existing field infrastructure to handle gas. No concerns.

Water Quality

(possible concerns)

Salt/oil based mud: Intermediate string hole will be drilled with synthetic based drilling fluids (oil based invert mud system) and open hole horizontal production hole will be drilled with fresh water polymer drilling fluids. Surface casing hole will be drilled with freshwater and freshwater mud system.

High water table: No high water table anticipated.

Surface drainage leads to live water: No, live water nearby to this location. Closest drainages are unnamed ephemeral drainages, about 1/8 of a mile to the southeast and northwest from this location.

There are some prairie potholes nearby to the southwest and southeast from this location.

Water well contamination: None, closest water wells in the area are about 5/8 of a mile to the southeast, about 3/4 of a mile to the northeast, about 3/4 of a mile to the southwest, about 7/8 of a mile to the southwest and about 7/8 of a mile to the southeast from this location. Depth of these stock and domestic water wells are from 24' to 300'. There are many shallow monitoring wells scattered around section 11, depth of 60' and less used to monitor for a saline seep study and for water quality for the Medicine Lake National Wildlife Refuge surface easements. Surface hole will be drilled with freshwater and freshwater drilling fluids. The surface casing setting depth of 1250' should be below all freshwater zones.

Porous/permeable soils: Yes, sandy gravelly clay soils.

Class I stream drainage: No, Class I stream drainages.

Mitigation:

☐ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☒ Closed mud system

☒ Off-site disposal of solids/liquids (in approved facility)

☒ Other: Freshwater drilling fluids will be land applied with surface owner approval.

Comments: 1250' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None anticipated.

High erosion potential: No, small cut, up to 3.1' and small fill, up to 4.2', required.

Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, large well site 400'X400'

Damage to improvements: Slight, surface use is a CRP land.

Conflict with existing land use/values: Slight surface use is CRP land.

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☐ Other _____

Comments: Access will use existing county road, Ueland Road, Lone Tree Road and existing unnamed section line county/lease road. A short road will be constructed into this location, about 90'. Surface hole (freshwater) cuttings will be buried on site. Oil based invert mud cuttings will be trucked to an approved waste disposal facility. Oil based drilling fluids will be recycled to the next location or returned to the mud company's recycling facility. Freshwater surface fluids and horizontal freshwater polymer fluids and cuttings will be land applied. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Residences are, about ¾ of a mile to the southwest, about 1 mile to the southwest and about 1.25 miles to the west from this location.

Possibility of H2S: Yes, slight possibility (Mississippian Formations).

Size of rig/length of drilling time: Heavy double drilling rig 20 to 30 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Only species identified as threatened or endangered are the Whooping Crane and Piping Plover. Species of concern is the Sprague's Pipit. NH tracker website lists fifteen (15) species of concern. As follows: Bairds Sparrow, Le Conte's Sparrow, Nelson's Sparrow, Grasshopper Sparrow, Sprague's Pipit, Ferruginous Hawk, Chestnut Collared Longspur, Piping Plover, Black Tern, Sedge Wren, Yellow Rail, Bobolink Whooping Crane, McCowen's Longspur and Smooth Greensnake.

The surface location is in a CRP land.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Private CRP surface lands. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: Private CRP surface lands. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: No concerns. Wildcat Bakken Formation single lateral well within an existing oil field, Flat Lake Oil Field.

Remarks or Special Concerns for this site

Wildcat Bakken formation single lateral horizontal well, 11,870' MD/7,769' TVD, within an existing oil field, Flat Lake Oil Field

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur, but can be mitigated in a short time.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title): Chief Field Inspector

Date: January 31, 2012

Other Persons Contacted:

Montana Bureau of Mines and Geology, Groundwater Information Center website.

(Name and Agency)

Sheridan County water wells_____

(subject discussed)

January 31, 2012

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Sheridan County

(subject discussed)

January 31, 2012

(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

Heritage State Rank= S1, S2, S3, T37N R57E

(subject discussed)

January 31, 2012

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____